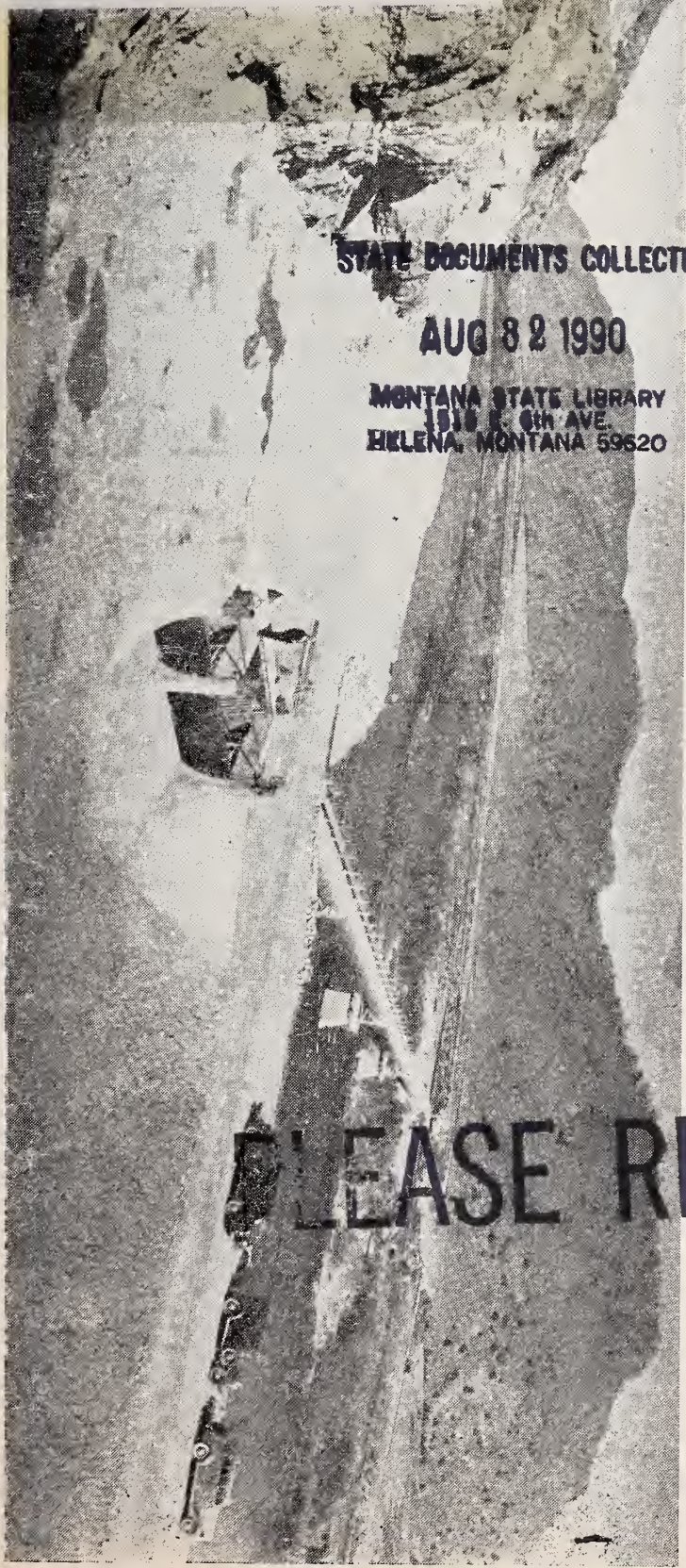


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Montana  
Reclamation  
Association  
Irrigation pays

PIPELINE BROADWAY-MISSOURI PROJECT, BROADWATER COUNTY



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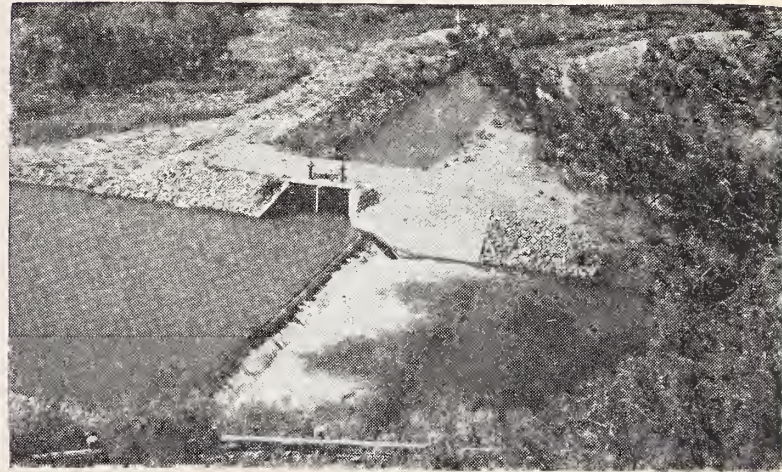
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# IRRIGATION PAYS

## In Montana

Projects Constructed by  
State Water Conservation Board



Ruby River Diversion Dam, Madison County

Published by  
MONTANA RECLAMATION  
ASSOCIATION

1954



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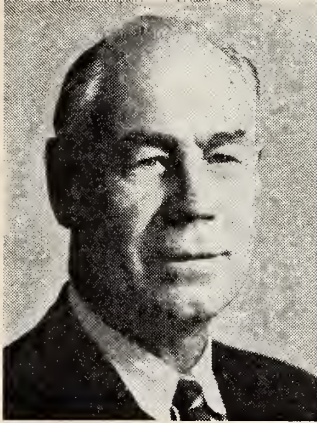
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## FOREWORD

In Montana we have come to recognize that our water resources are the real lifeblood of this great state. The Montana Reclamation Association is to be congratulated for its support of the state's program for the conservation of these water resources. This pamphlet describing the activities of the Association and the State Water Conservation Board gives proof of the outstanding results that can be accomplished through our own initiative. Failure to recognize the need for zealously guarding our rights to these water resources can mean jeopardizing the economic future of many Montana people for generations to come. Our best way to protect these water rights is by continuing this program of putting them to beneficial use as rapidly as is possible. The Montana Reclamation Association is rendering a great service to the people of Montana in bringing to them through this pamphlet the state's accomplishments in the water conservation program.

J. HUGO ARONSON, Governor.



## TWENTY YEARS OF PROGRESS

This year, 1954, Montana's water conservation program is twenty years old. Its establishment was largely the result of the efforts of "men of vision," who had long recognized the need of the state engaging in the conservation of its water resources. Despite their attempts to interest others, these visionary men were unable to get widespread help to formulate a program of water conservation until the droughts of the early nineteen thirties, which threatened to completely depopulate large agricultural and livestock growing areas of our state, furnished the necessary incentive. This resulted in the creation of the State Water Conservation Board. The Montana Reclamation Association is the successor of the founding group who conceived this water conservation program, and many of our present association members were amongst these original "men of vision."

In this pamphlet we are reporting pictorially on the program of the State Water Conservation Board and also setting forth facts and figures as to its accomplishments thus far. This is an enviable record of progress, and one that is recognized nationally.

The constructed projects have not only brought stability to many of our agricultural and livestock areas through furnishing them with adequate water supplies, but the indirect returns from these projects through establishing an increased tax base has benefitted all branches of our government. The new wealth created by the increased production on the lands irrigated by the projects has made substantial contributions to the success of business and industry.

Security for our homes is the greatest blessing people can have. Through this program we have made a tremendous advancement to provide life-giving water to large areas in the state, thus reducing the hazard of droughts to many of our farm families. Through it we have also provided a service in securing electricity for a large number of rural homes.

Montana is a great agricultural state, but to keep it great, we must continue to develop our water resources. We must aggressively make these water resources available for the irrigation of every acre of suitable land in Montana.

PAUL WORKING, President  
Montana Reclamation Association.



# STATE WATER CONSERVATION BOARD

## Construction Program Fiscal Years 1953 and 1954

**Cottonwood Storage Project—Park County:** Dam and reservoir with an ultimate storage capacity of 2,200 acre feet to furnish supplemental irrigation supply for 2,000 acres. Dam and dike are 1,400 feet long with a maximum height of 38 feet. Completed December 1, 1953.

**Florence Canal Project—Lewis and Clark County:** Fourteen miles of seventy-five second foot canal to furnish water supply to 5,000 acres of new land. Will use storage water from Nilan reservoir and direct stream flow from Smith Creek. Contract for structures awarded July 1, 1954. Completion date May 1, 1955.

**Vigilante Extension Project—Madison County:** Five miles of fifty second foot canal to supplement the irrigation on 2,500 acres. This canal will use water from Ruby River Storage Project. Contract awarded July 1, 1954. Completion date June 1, 1955.

**Delphia Canal Project—Musshell County:** Eight and one-half miles of new canal from Musshell River to supply 1,800 acres of new land. Water will be furnished from river and Deadman's Basin Storage Project. Contract awarded July 1, 1954. Completion date June 1, 1955.

**Daly Ditches Project—Ravalli County:** Replacing 11,326 feet of old timber flume with 5,840 feet of 48-inch diameter steel siphon, 915 feet of new timber flume, 168 feet of rock tunnel and 4,681 feet of canal in rock cut and embankment. Also repair of diversion dam and enlarge and regrade 3,930 feet of existing canal. Also repaired a steep side hill slide and placed 1,300 square yards of Bentonite canal lining. Work completed March 1, 1954.

**Helena Valley Project—Lewis and Clark County:** Replacing 1,000 feet of 36-inch wood stave pipe with concrete pipe and rebuilding 800 feet of wood stave pipe in supply line. Completed May 1, 1954.

**Petrolia Project—Petroleum County:** Construction of three miles of new canal with necessary structures. Drilling of grout holes and grouting to eliminate seepage in the dam. New installation for pumping to augment the gravity water supply for 425 acres. Also installed canal checks, drops and farm bridges. Work completed August 15, 1954.

**Fiddle Creek Project—Gallatin County:** Excavation and backfill of a cut off trench to a maximum depth of 44 feet to eliminate seepage. Reconditioned and earth lined three miles of the Cottonwood Creek Canal, also replaced several overpass flumes with concrete structures. Drained three small mountain lakes above dam at abutments. Work completed October 1, 1953.

**Sidney Project—Richland County:** Replaced timber flume with 117 feet of 48-inch corrugated metal pipe siphon and compacted fill. Also cleaned and enlarged high line canal.

**Flint Creek Project—Granite County:** Cleaning of ten miles of Marshall Creek Canal—Bentonite on several sections of main canal. Completed December 1, 1953.



**West Fork Dam—Ravalli County:** Concreted and pressure grouted a cavitation area below the control gates.

**Upper Musselshell Project—Wheatland County:** Repaired two side-hill slides and placed 4,000 square yards of Bentonite and earth canal lining on Two-Dot canal.

**Lower Musselshell Canals—Musselshell County:** Replaced siphon and checks damaged by floods. Installed canal checks and turnouts; reconstructed 2,000 feet of canal and placed 2,700 square yards of Bentonite and earth canal lining. Work completed June 1, 1954.

**Nilan Project—Lewis and Clark County:** Repair of an extensive slide on the intake canal and installed 6,000 square yards of Bentonite canal lining. Also placed pipe drains at the north storage dam.

**Hysham Pumping Project—Treasure County:** Installed third 19,500 gallon per minute pumping unit and constructed farm crossing in sluice way canal with 72-inch concrete pipe. Completed June 1, 1954.

**Nevada Creek Project—Powell County:** Relocation and construction of 3,000 feet of canal damaged in spring floods. Installed canal drops and farm turnouts and replaced wood flume with a concrete pipe culvert and compacted embankment. Completed November 1, 1953.

**Ackley Lake Project—Judith Basin County:** Cleaning of intake and outlet canals and replacement of bridges. Completed July 1, 1953.

**Smith River South Canal—Meagher County:** Completed enlargement of canal and replaced timber bridges with metal pipe. Completed May 1, 1953.

**Broadwater-Missouri Project—Broadwater County:** In cooperation with the local water users' association cleaned and enlarged six miles of the east side canal.

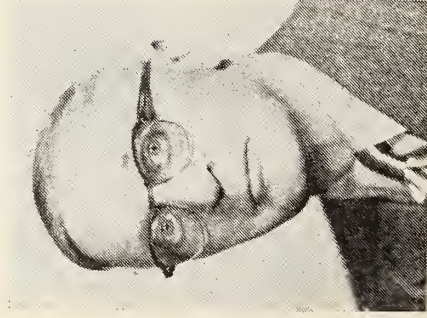
**Columbus Project—Stillwater County:** Relocated and constructed 400 feet of canal through a rocky and seeped area and cleaned canal and tail water ditch.

**Deadman's Basin—Golden Valley County:** Major repairs to 350-foot drop into Careless Creek, installed canal checks and turnouts and placed heavy rock rip-rap below reservoir outlet structure. Work completed June 1, 1954.

**Absarokee Sewer System—Stillwater County:** Furnished engineering and supervised the installation of 17,000 feet of 6 to 10-inch clay sewer tile, 54 concrete manholes, and the construction of a reinforced concrete Imhoff tank for sewage treatment.

## RECORD OF ACCOMPLISHMENTS

The program of the State Water Conservation Board has made a definite contribution to the security and welfare of a great number of Montana families. More than 2,000 farms are securing a dependable water supply for irrigation, and the project facilities constructed by the Board are only being used to the extent of about 50% of their potential capacity. From its projects over 600,000 acre feet of water is available each year and almost 400,000 acres of land are situated under the projects and can be served by them.



The Board has furnished engineering for many irrigation companies and districts in the improvement and repair of their projects. It has provided domestic water supply systems for small communities serving an aggregate of 2,840 people. It has supplied the engineering for electric cooperatives resulting in the construction of 11,049 miles of line, supplying electrical energy to 13,674 customers. It has furnished cooperation with all federal agencies in their development of water resources in Montana. It has investigated and accumulated data on future possible irrigation developments in the state and is ready for the construction of these projects as demands occur and funds permit.

During the present biennium, in addition to major improvements and betterments on many of its projects the Board has constructed a dam and reservoir on Cottonwood Creek in Park County with an initial storage capacity of 1,400 acre feet and an ultimate capacity of 2,200 acre feet. It is constructing a 14-mile canal near Augusta in Lewis and Clark County to serve 5,000 acres of land with storage water from the Nilan reservoir. An extension to the Vigilante Canal in Madison County is under construction. This canal will bring another 2,500 acres under irrigation in that area. Work is also under way on the Delphia Canal in Musselshell County to serve 1,800 acres in that area. A new pumping plant to serve 450 acres and an extension of 3 miles of canal on the Petrolia Project in Petroleum County has been completed. The third 19,500 gallon per minute pumping unit on the Hysham project in Treasure County has been installed. Amongst the major improvement jobs completed in this biennium are the replacement of large sections of flumes on the Daly Ditches project in Ravalli County with 5,840 feet of 48-inch steel pipe siphon, and rebuilding and replacing 1,800 feet of 36-inch pipe line on the Helena Valley project in Lewis and Clark County.

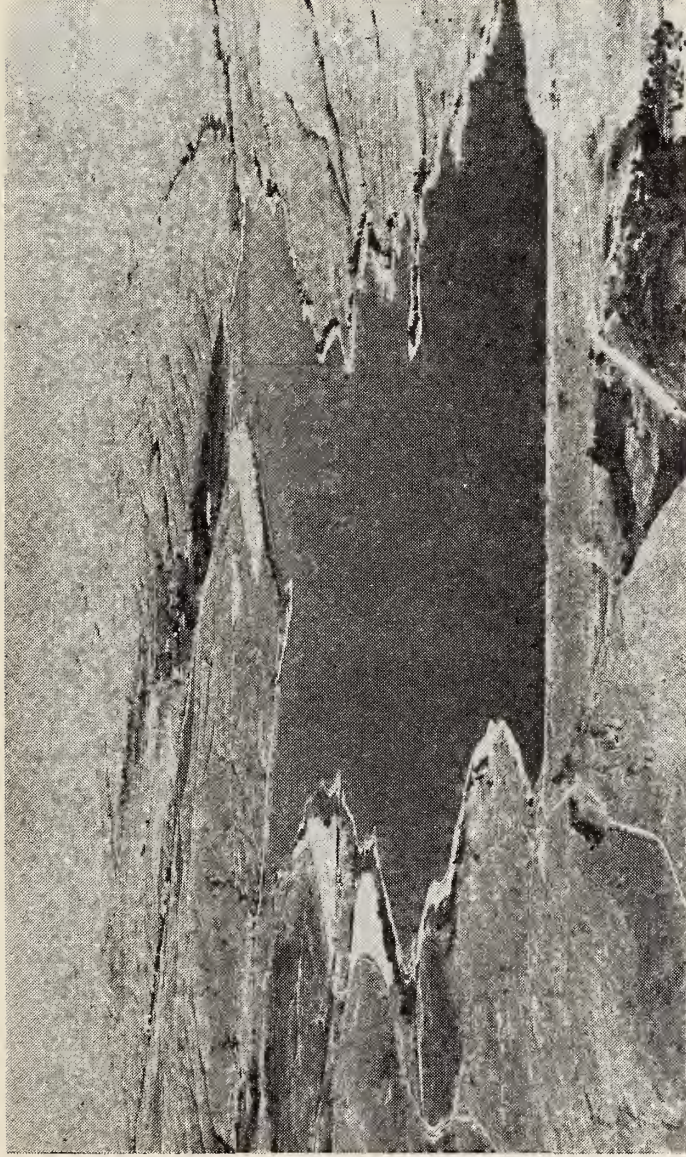
A full statement of the construction work carried on by the Board in the fiscal years 1953 and 1954 is incorporated in this pamphlet.

The Montana Reclamation Association recommends the continuance and expansion of this construction program and urges that the legislature make adequate appropriations for it. We must do all possible to insure the safety and well being of our people through the development wherever possible of the use of our water resources.

O. P. BALGORD, Chairman Legislative Committee,  
Montana Reclamation Association.

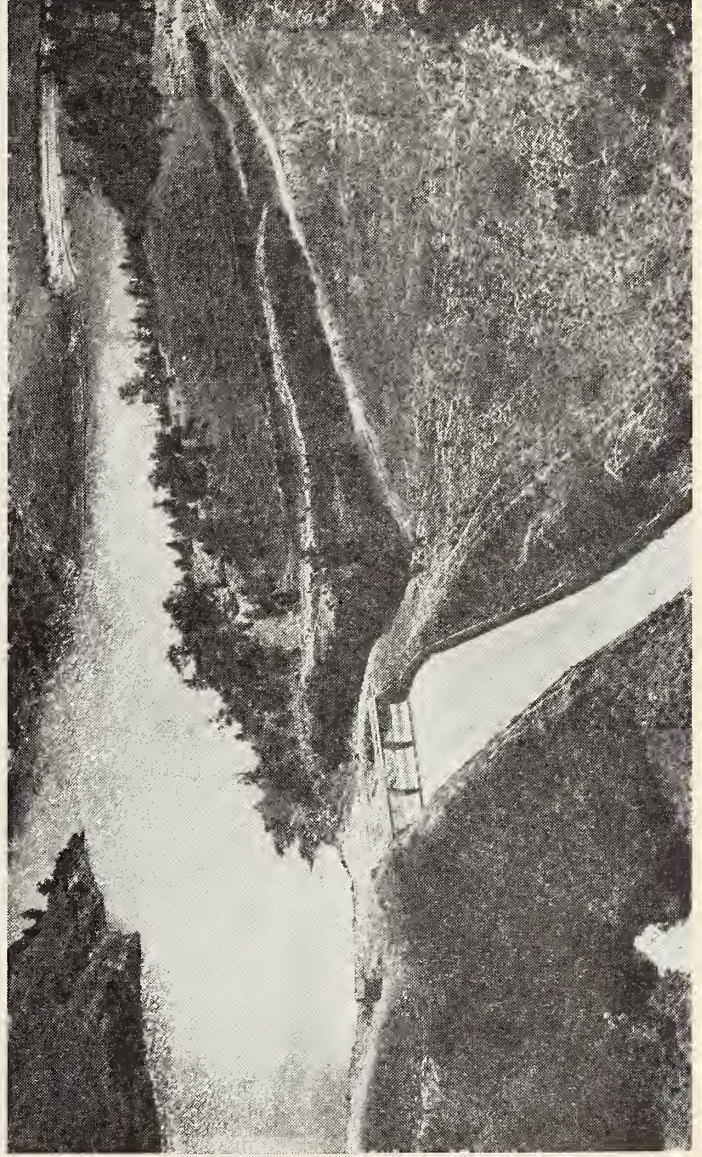


**Cooney  
Dam**



**Carbon  
County**

**Willow  
Creek  
Dam**



**Gallatin  
and  
Madison  
Counties**

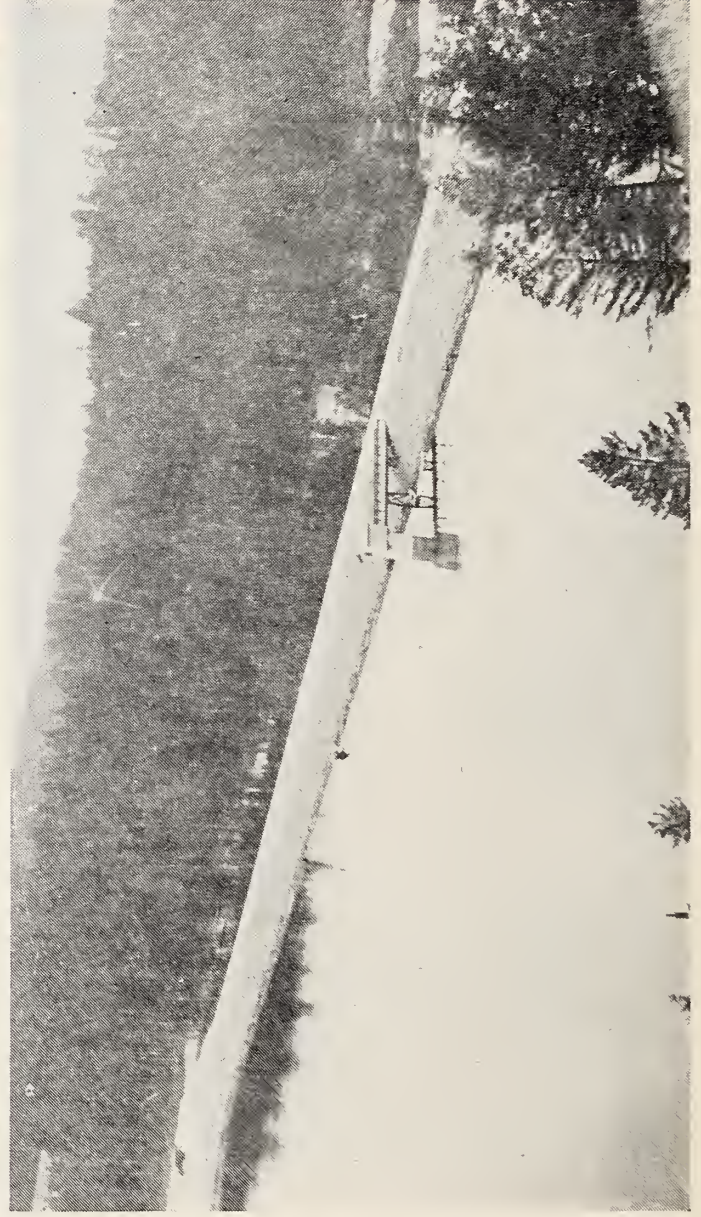


**North  
Fork  
Smith  
River  
Dam**



**Meagher  
County**

**Flint  
Creek  
Dam**



**Granite  
County**

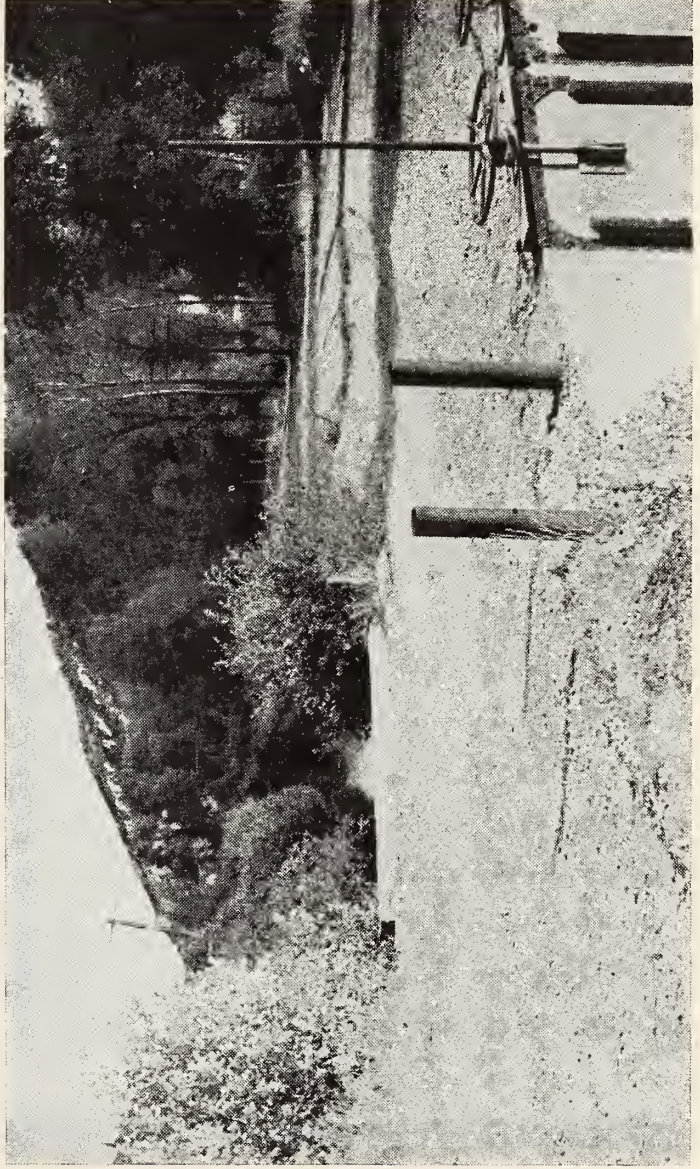


**Park  
Branch  
Canal**



**Park  
County**

**Livingston  
Ditch**



**Park  
County**



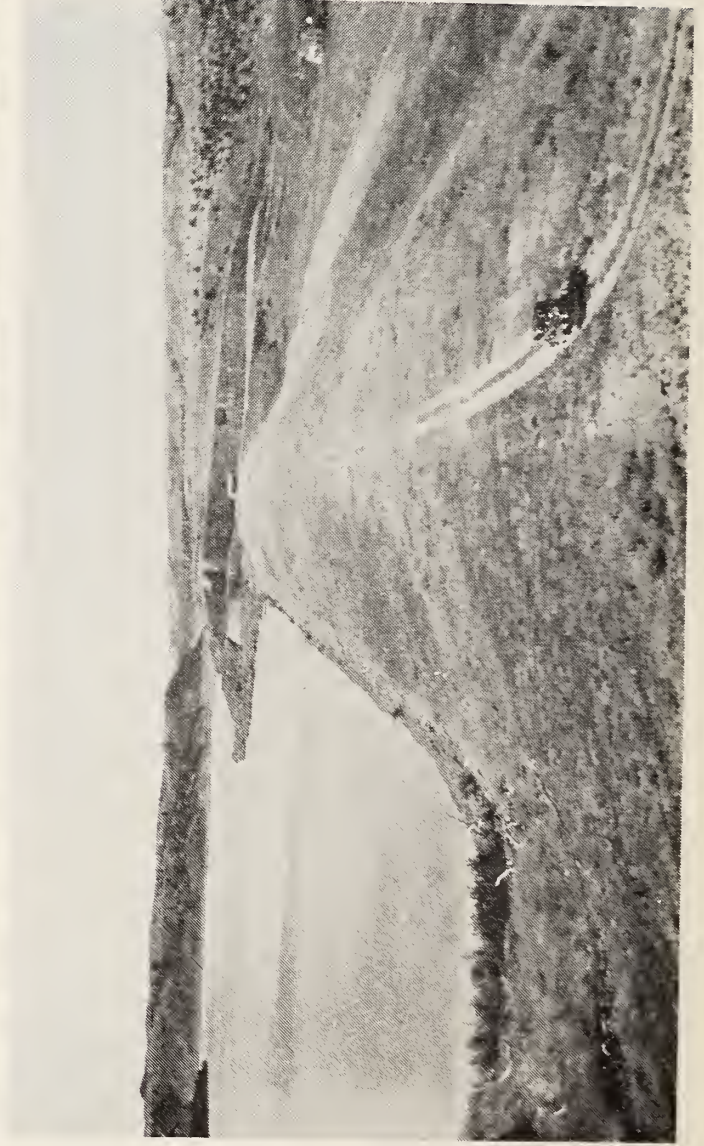
**Ruby  
River  
Dam**

**Madison  
County**



**Tongue  
River  
Dam**

**Big Horn  
and  
Custer  
Counties**



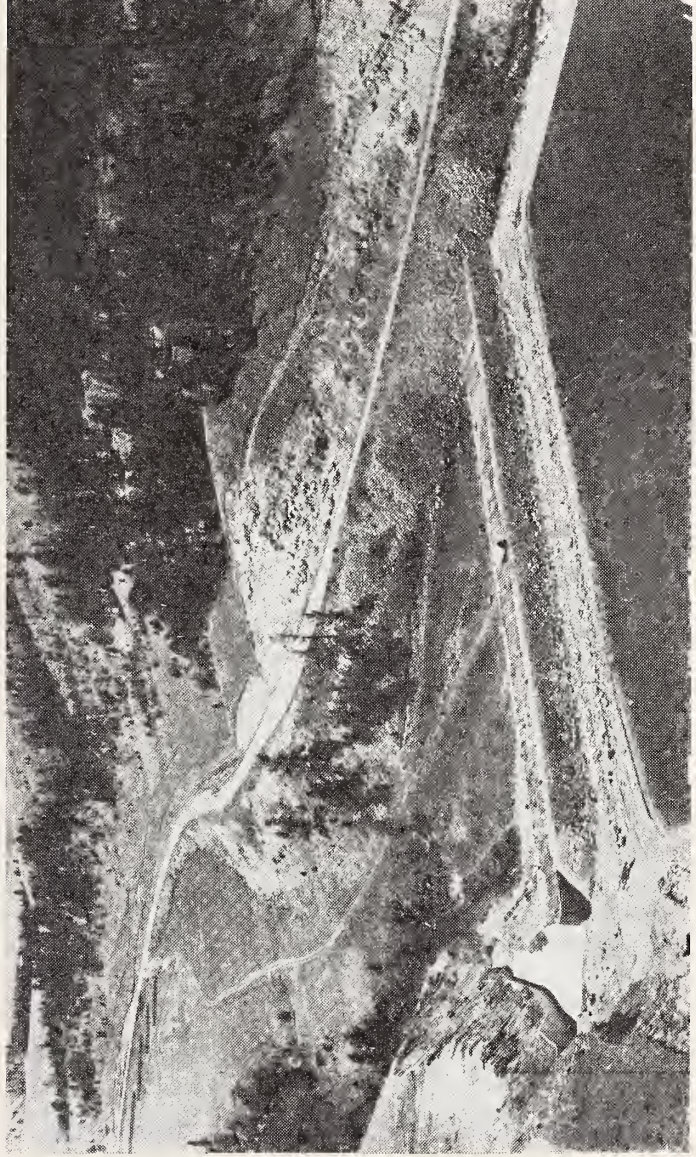


**Nevada  
Creek  
Dam**



**Powell  
County**

**Durand  
Dam**



**Meagher  
and  
Wheatland  
Counties**



**Headgate,  
Columbus  
Canal**



**Stillwater  
County**

**West Fork  
of  
Bitterroot  
Dam**

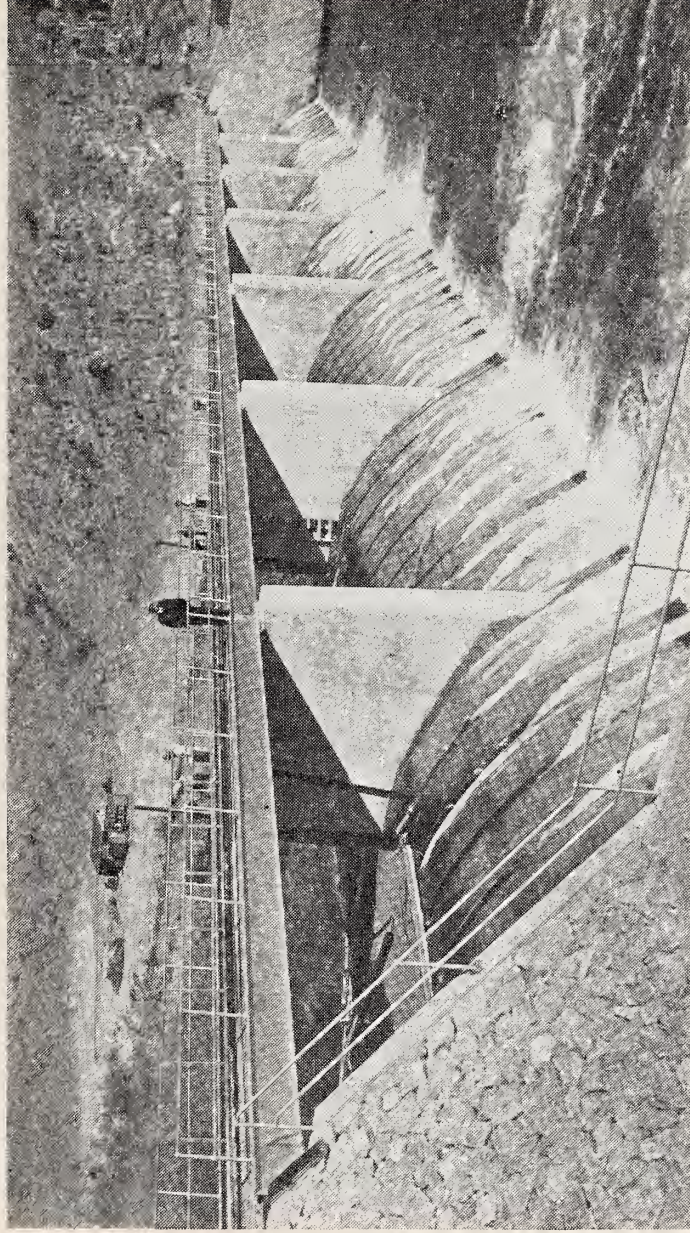


**Ravalli  
County**



**Broadwater-  
Missouri  
Dam**

**Broadwater  
County**



**Middle  
Creek  
Dam**

**Gallatin  
County**





**Golden  
Valley,  
Wheatland  
and  
Musselshell  
Counties**



**Deadman's  
Basin  
Diversion**

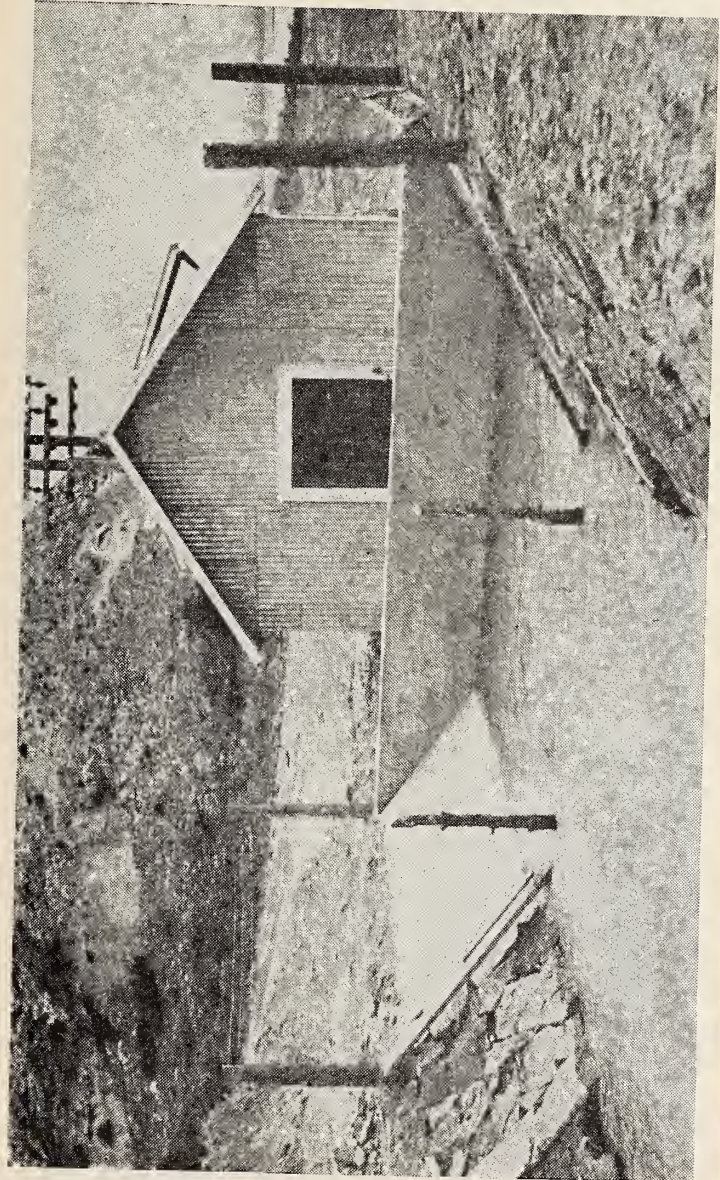
**Phillips  
County**



**Frenchman  
Dam**



**Richland  
County**



**Pump  
Plant,  
Sidney**

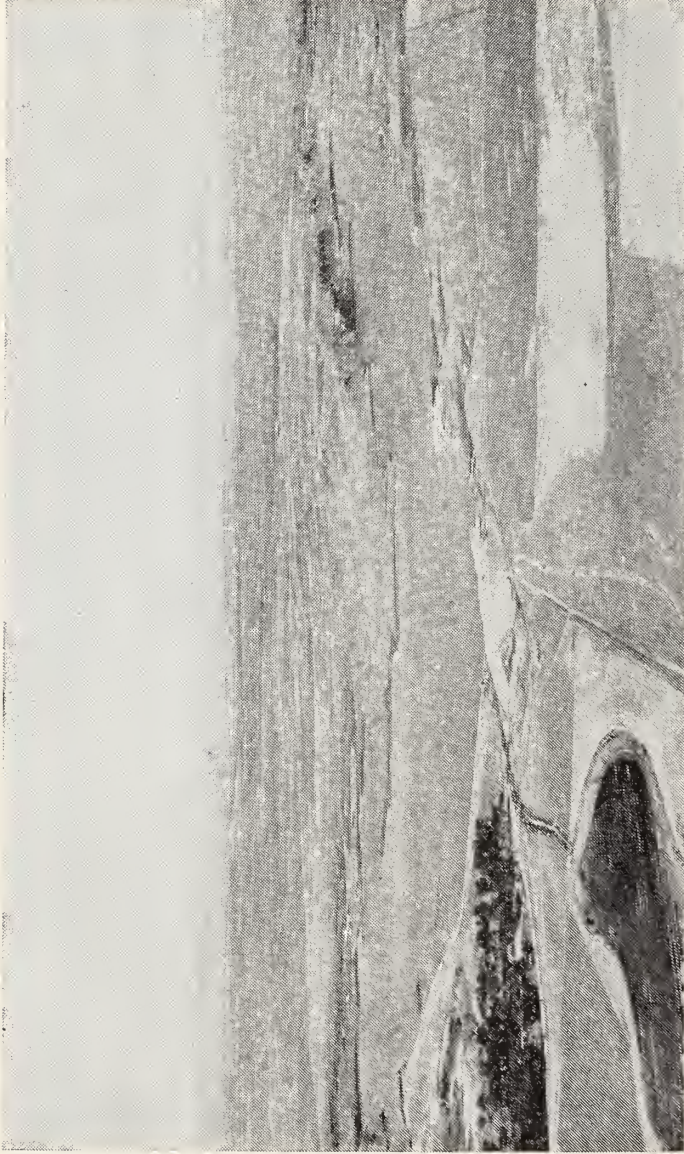
**Ravalli  
County**



**Fred Burr  
Creek  
Storage**

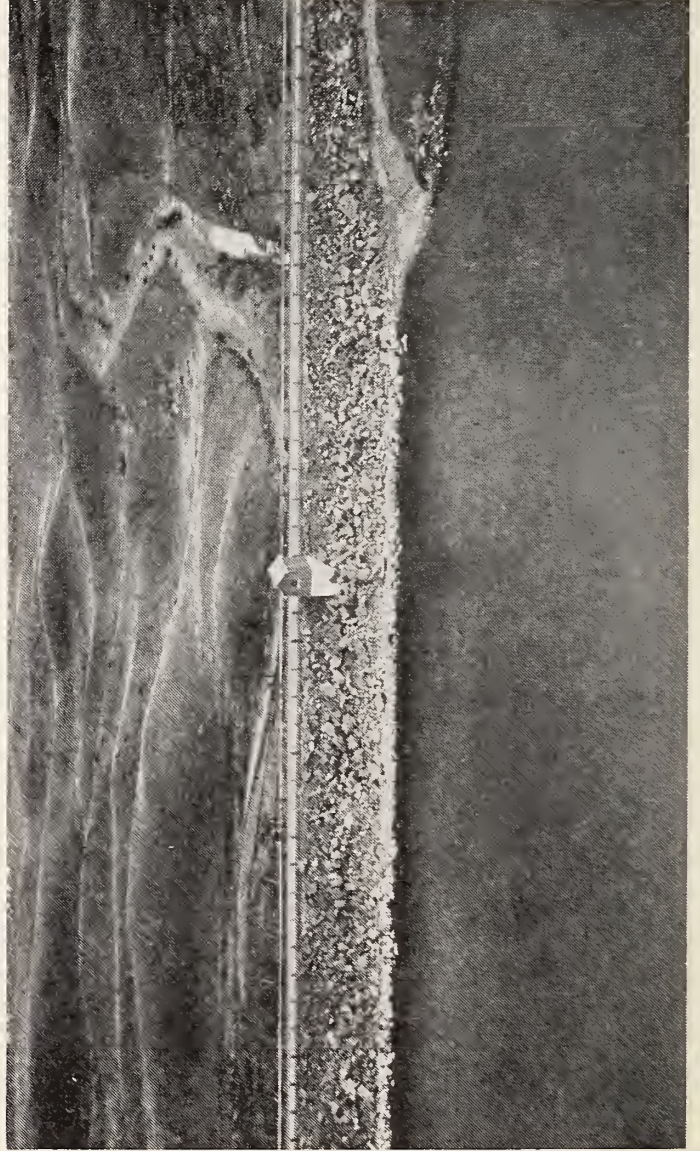


**Petrolia  
Dam**



**Petroleum  
County**

**Nilan  
Dam**



**Lewis and  
Clark  
County**



**Daly  
Ditches  
Skalkaho  
Creek  
Syphon**



**Ravalli  
County**

**Cottonwood  
Storage**

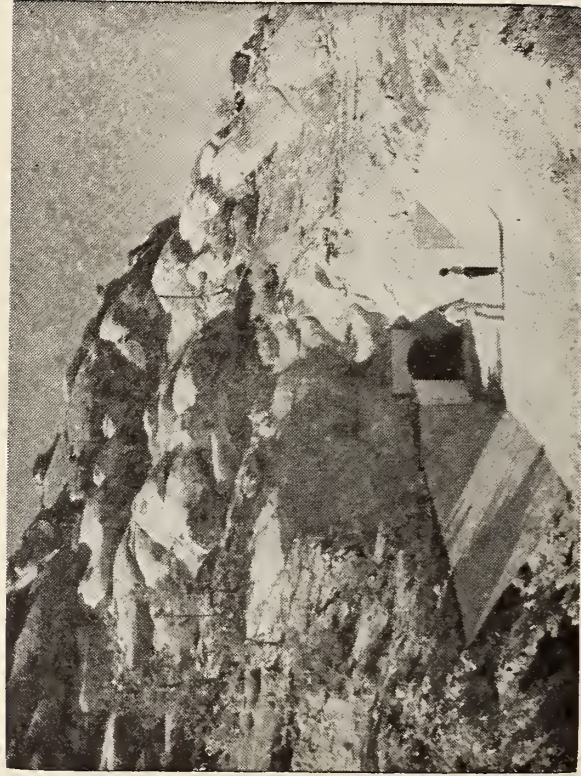
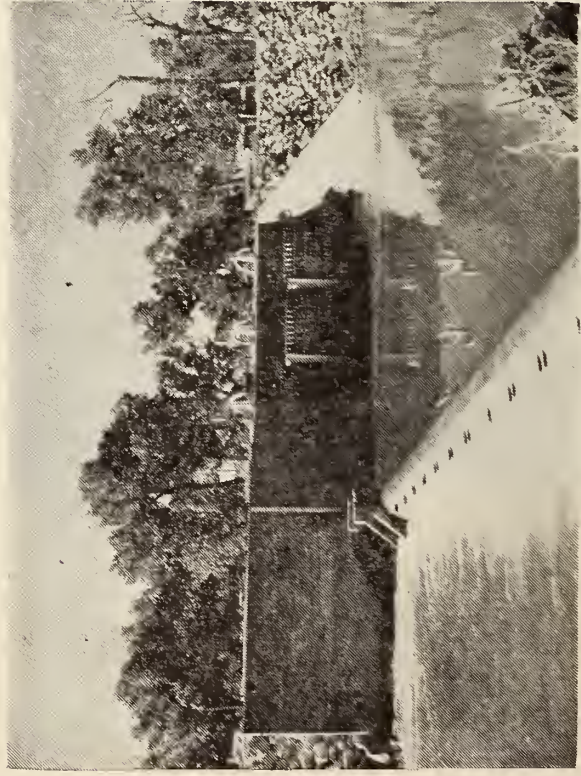


**Park  
County**



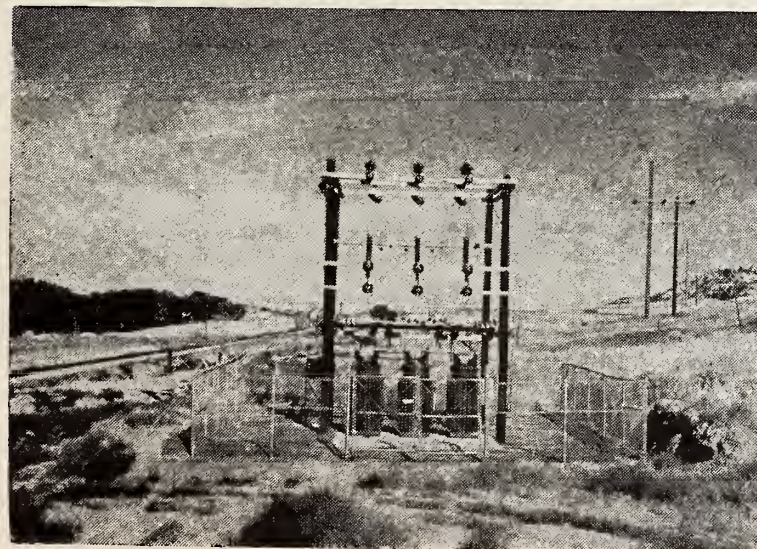
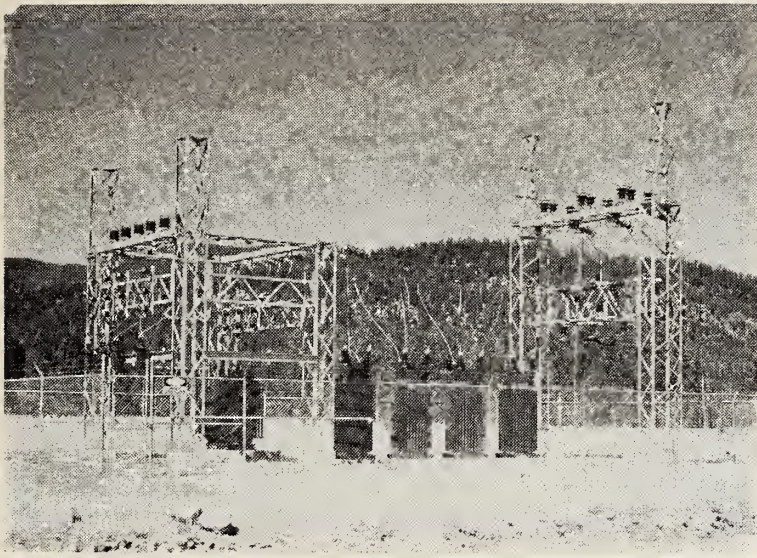


**Hysam Pumping Project, Treasure County**



**Lower Musselshell Canals, Musselshell County**





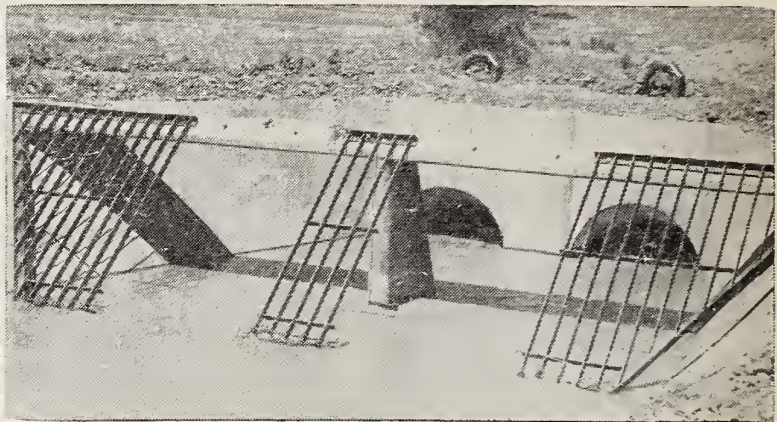
## Rural Electrification Projects Engineered by the State Water Conservation Board

Cooperative	Miles of Line	Members Served
Ravalli County Electric .....	40.10	30
Sun River Electric .....	95.84	273
Lower Yellowstone Electric	735.15	962
Yellowstone Valley Electric	470.23	1,242
Vigilante Electric .....	648.85	898
Missoula Electric .....	359.26	648
Flathead Electric .....	278.21	582
Fergus County Electric .....	416.15	553
Park County Electric .....	368.68	695
Mid-Yellowstone Electric ...	191.90	157
Beartooth Electric .....	609.28	982
Big Horn Electric .....	363.23	668
Sheridan County Electric...	1,709.71	1,833
Northern Electric .....	1,054.05	1,000
Valley County Electric .....	435.10	450
McCone County Electric ....	387.93	541
Golden West Electric .....	726.82	693
Hill County Electric .....	1,530.45	936
Tongue River Electric .....	628.07	531
Totals .....	11,049.01	13,674





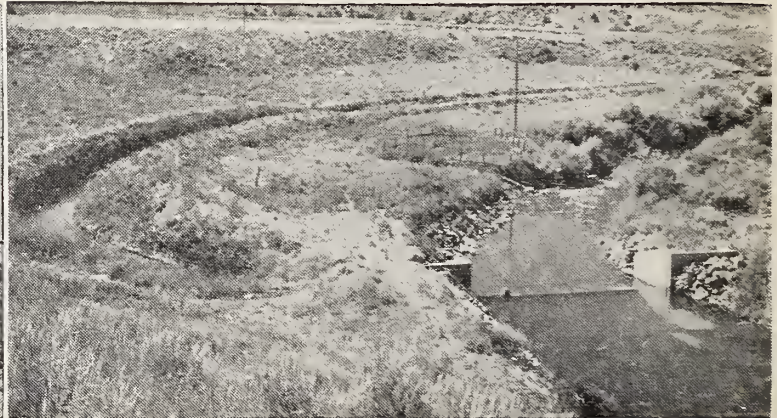
West Side Diversion Dam  
Powell County



Two-Leggins Ditch Company Syphon  
Big Horn County



Billings Bench Water Users Flume  
Yellowstone County



Shields Canal Water Users  
Park County



Brady Domestic Water Supply  
Pondera County



Helena Valley Pumping Pipeline  
Lewis and Clark County